



가  
 가, 2-  
 가 1 a (20 m  
 mol), (80 mmol), (110 mmol), (30 mmol), N,N- ( )  
 DMAc ;40ml)  
 180 3 , 98% (2 a)  
 .(HPLC )  
 가 가

O-Nitroaniline					
Run	Solvent (40ml)	Distribution <sup>a)</sup> (%)			
		2a	3a	4a	1a
1	N,N-Dimethylformamide	92(76) <sup>c)</sup>		8	
2	Pyridine	13	11	50	26
3	Pyridine <sup>b)</sup>	1	trace	10	87
4	N,N-Dimethylacetamide	98(94) <sup>c)</sup>		2	
5	Dimethyl Sulfoxide			6	94
6	1,3-Dimethyl-2-Imidazolidinone	94(60) <sup>c)</sup>		3	
7	1,4-Dioxane			2	98
8	N-Methylformamide <sup>d)</sup>	9	trace		

o-Nitroaniline;2.76g(20mmol), S;2.57g(80mmol), H<sub>2</sub>O;2ml(110mmol), Ammonium formate;6.30g(100mmol), K<sub>2</sub>CO<sub>3</sub>;4.14g(30mmol), Temp;180 , Time;3h  
 a) Determined by HPLC. b) Without K<sub>2</sub>CO<sub>3</sub>. c) Isolated yield.  
 d) Benzimidazole was main product

1,2-  
 (4  
 a) 2-  
 (3 a)

N,N-

N,N- 1,3- - 2-  
 가 , 가  
 N- 가 가  
 2- 4 mol , 5 mol  
 가 ( 94%)  
 180 , 3  
 가 -2- 가  
 , 2- 가  
 2- 가  
 N<sub>2</sub> CO 가 28  
 가  
 180 3 가

